

Figure 1.

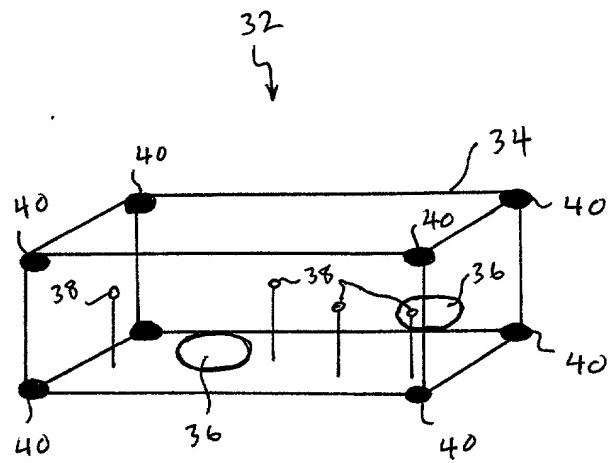


Figure 2

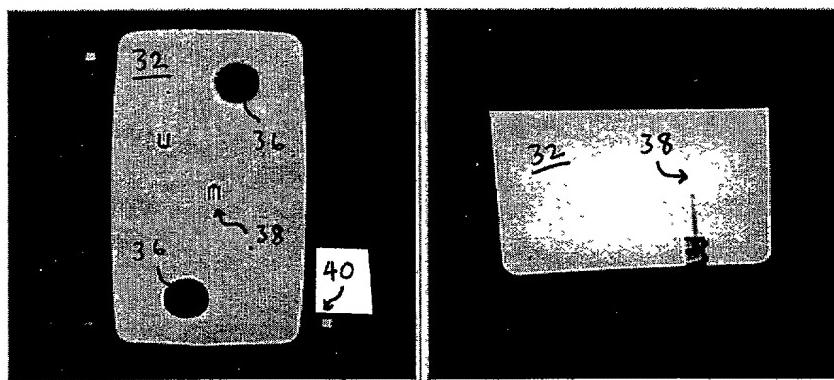


Figure 3

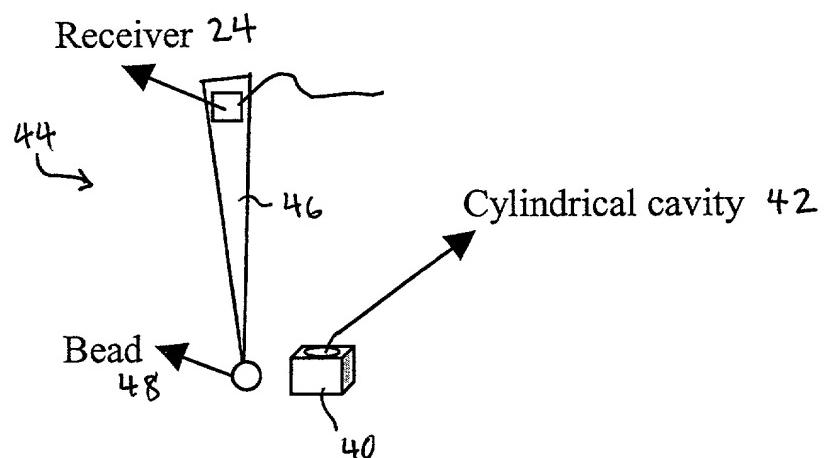


Figure 4.

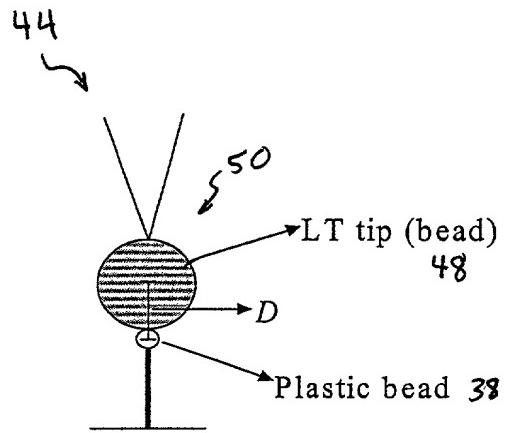


Figure 5

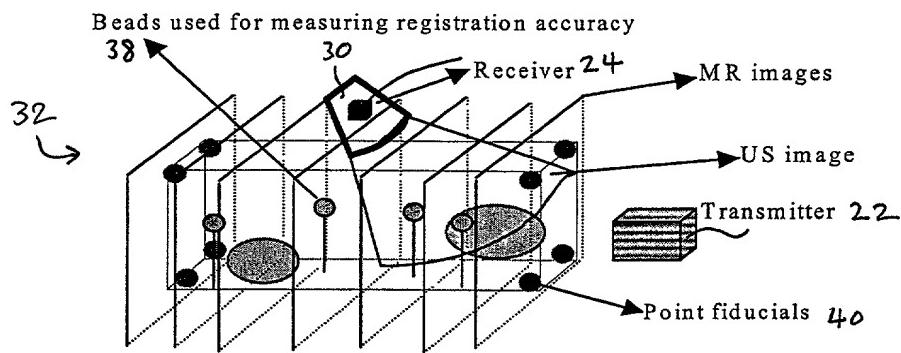


Figure 6

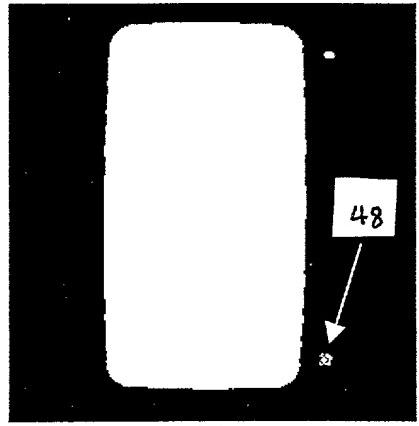


Figure 7(a)

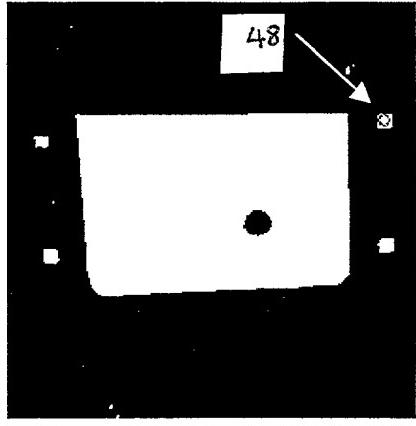


Figure 7(b)

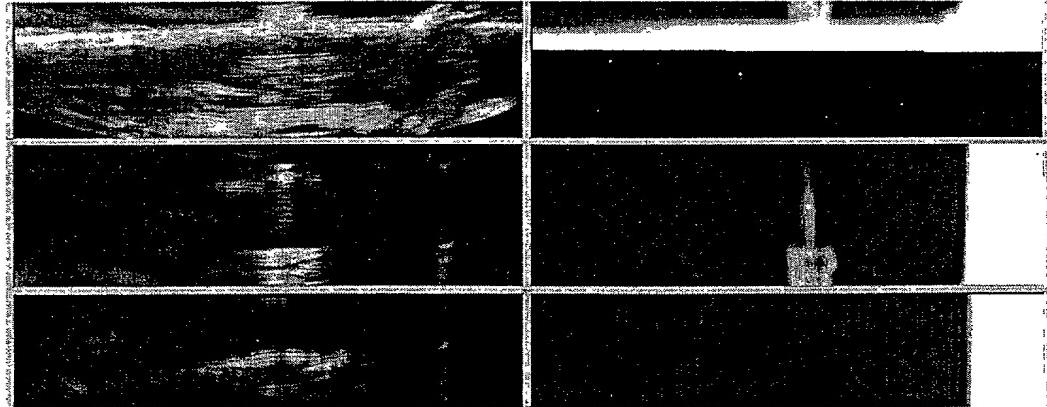


Figure 8(a)

Figure 8(b)

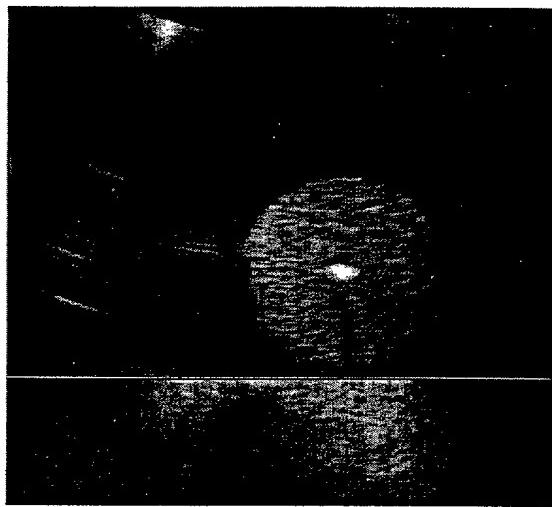


Figure 9(a)

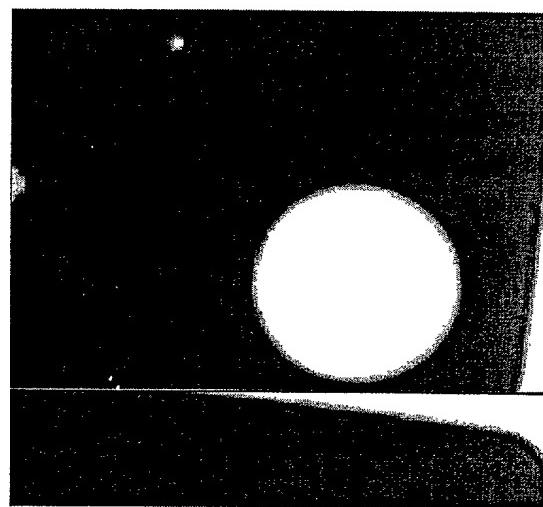


Figure 9(b)

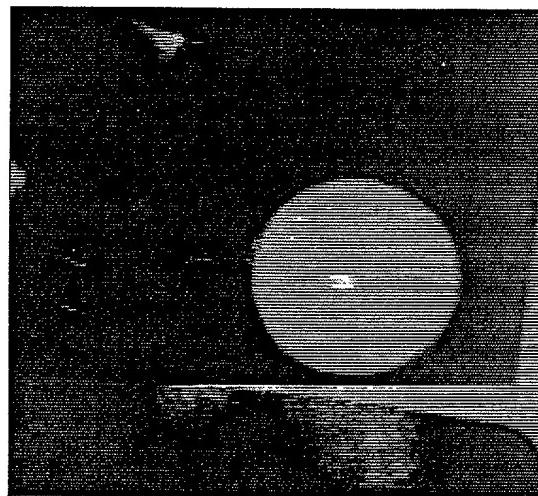


Figure 9(c)

Table I. $FRE_{MR-tran}$ and $TRE_{MR-tran}$ for 12 different configurations of the phantom and the transmitter ³²
22

	$FRE_{MR-tran}$	$TRE_{MR-tran}$
mean (mm)	1.18	1.78
std (mm)	0.10	0.18
min (mm)	1.02	1.50
max (mm)	1.38	2.08

Figure 10(a)

Table II. Statistics of the difference $D_{meas} - D_{true}$.

Figure 10(b)

	Bead 1	Bead 2	Bead 3	Bead 4
mean (mm)	-0.01	-0.26	0.03	-0.32
std (mm)	0.57	0.54	0.93	0.59
min (mm)	-0.92	-0.96	-1.55	-1.19
max (mm)	0.81	0.74	1.42	1.18

Table III. Statistics of registration error TRE_{US-MR} between MR and US space.

	Bead at depth of 16.8 mm	Bead at depth of 29.9 mm	Bead at depth of 44.5 mm	Bead at depth of 62.9 mm
mean (mm)	3.56	3.00	2.24	2.00
std (mm)	1.82	1.30	0.78	0.75
min (mm)	0.16	0.85	1.03	0.64
max (mm)	8.49	6.24	3.59	3.73

Figure 10(c)

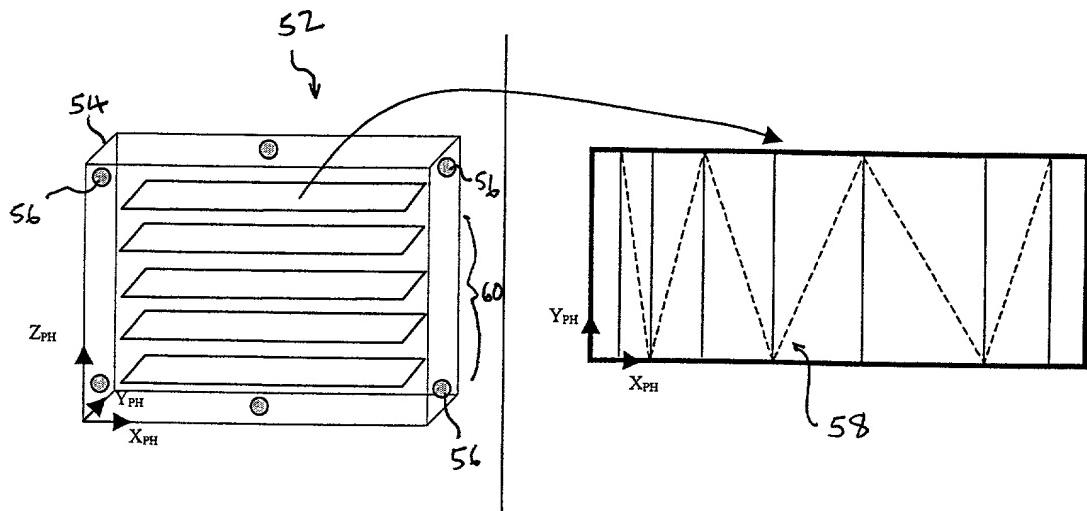


Figure 11(a)

Figure 11(b)

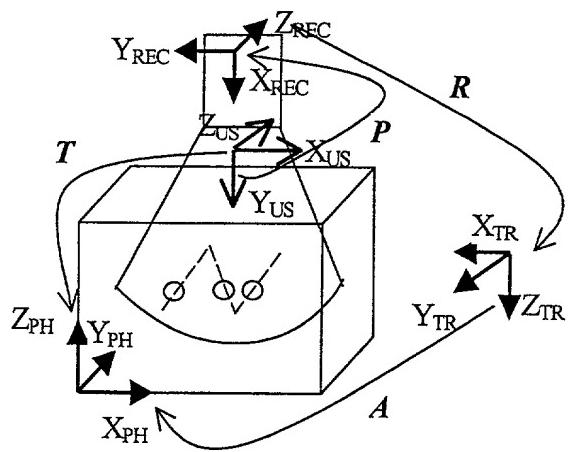


Figure 12

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

APPARATUS AND METHOD FOR INTERACTIVE 3D REGISTRATION OF ULTRASOUND AND MAGNETIC RESONANCE IMAGES BASED ON A MAGNETIC POSITION SENSOR

the specification of which

XXX is attached hereto.
was filed on _____ as
United States Application Number _____
or PCT International Application Number _____
and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

<u>Prior Foreign Application(s)</u>			<u>Priority Claimed</u>	
Number	Country	Day/Month/Year Filed	Yes	No

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

60/125,017 March 18, 1999
Application Number Filing Date

60/135,065 May 20, 1999
Application Number Filing Date

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application Number	Filing Date	Status -- patented, pending, abandoned
--------------------	-------------	---

Application Number	Filing Date	Status -- patented, pending, abandoned
--------------------	-------------	---

I hereby appoint the persons listed on Appendix A hereto (which is incorporated by reference and a part of this document) as my respective patent attorneys and patent agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Send correspondence to Dennis M. de Guzman, BLAKELY, SOKOLOFF, TAYLOR & (Name of Attorney or Agent)
ZAFMAN LLP, 12400 Wilshire Boulevard 7th Floor, Los Angeles, California 90025 and direct telephone calls to Dennis M. de Guzman, (425) 827-8600. (Name of Attorney or Agent)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's Signature _____ Date _____

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Full Name of Sixth/Joint Inventor _____

Inventor's Signature _____ Date _____

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Post Office Address _____

Full Name of Seventh/Joint Inventor _____

Inventor's Signature _____ Date _____

Residence _____ Citizenship _____
(City, State) (Country)

Post Office Address _____

APPENDIX A

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APPENDIX B

Title 37, Code of Federal Regulations, Section 1.56 Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclosure information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclosure all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made or record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.